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How the meteorological reconnaissance flights began

By E. B. Kraus

Summary

An account is given, based on personal reminiscence, of how meteorological reconnaissance flights started during the Second World War. Some experiences of the pilots and observers are described.

This is a very personal account of the beginning of the meteorological reconnaissance flights.

In 1939, I was a graduate student of Jack Bjerknes in Bergen, Norway. I also held a Czech private pilot's licence and both British and Czech soaring (C) licences. I had done some soaring on Dunstable Downs during the summer of 1938 and had met, during that visit to England, Professor Lindeman (later Lord Cherwell) and E. Gold (then Deputy Director of the Meteorological Office). I mention these names, because they played a role in the subsequent Meteorological Reconnaissance Flight story.

After the outbreak of the war I volunteered for service in France and finally got there in March 1940. When France collapsed in June 1940, I made my way to England via Algiers and Gibraltar. Things were a bit confused at that time. I arrived in England without any papers and in some trouble after a spat with a senior Czech officer during the passage from Gibraltar to Liverpool. As a result I found myself — with several thousand others — in Pentonville prison while the authorities pondered who we were and what to do with us.

When nothing happened for two weeks or so, I contacted Gold who sent Flt. Lt. Portass, the former Meteorological Liaison officer in France, to Pentonville to identify me. Things developed quickly after that. I was released and asked to join the Czech army in England as a private. At the same time I was offered via Portass a commission as a meteorological officer in the RAF Volunteer Reserve. My experience during the passage from Gibraltar had made me chary of the Czech military. Like other armies-in-exile they were desperately short of enlisted men (officers are much more mobile in defeat). Pilot Officer sounded grander than private 2nd class; it also seemed to offer a chance of flying again. The decision to join the RAF was clinched after a talk with Col. Kalla who was the military attaché at the Czech embassy. He told me not to be a fool and to use my opportunity. (Kalla was executed in Prague after the communist take-over.)

By that time, the Battle of Britain had started. Like all new officers in the RAF I was given 40 guineas to buy myself two uniforms and other paraphernalia. I then reported to Adastral House. The interviewing officer told me that I was posted to familiar grounds in Dunstable and — by the way — here was some secret material which had to be carried by an officer, so would I please take it along. Until then, even after my release from Pentonville, I had to report to the local police once a week as a suspect foreigner. The confidence of this unknown briefing officer had suddenly made me a member of the club. Nothing could have kindled more loyalty to the RAF than this simple and probably unpremeditated casual gesture.

In Dunstable I worked briefly with Douglas* and — I believe — with Durst†. In September or October 1940 I was posted as a Meteorological Officer to No. 4 Group, Bomber Command in York. The Senior Meteorological Officer in York was Richard Veryard‡. We got on particularly well together, but

*C. K. M. Douglas: The Meteorological Office's greatest forecaster. See obituary notice in *Meteorol Mag*, **111**, 1982, 252.
†C. S. Durst: Assistant Director (Special Investigations) 1948–53.
‡R. G. Veryard: Deputy Director (Central Services) 1958–59. President of the Commission for Climatology of WMO 1957–61.

I still wanted to fly. Both Veryard and I felt that meteorological forecasts would be improved if more data were available from oceanic locations. To get these data on a regular basis would require special, long-distance meteorological reconnaissance flights. A letter which rationalized and advocated the institution of such flights was drafted by me and sent — under our joint signature, I believe — to Nelson Johnson who was then Director of the Meteorological Office. This letter is presumably still in the archives. We also discussed the matter with Air Vice Marshal Coningham who was Air Officer Commanding No. 4 Group and who supported the idea through RAF channels.

I do not know whether it was really this initiative which led to the establishment of the meteorological reconnaissance flights. The idea may have been in the air, because I got a very fast response. Within weeks, probably in November 1940, I was summoned to London to see Johnson at the Air Ministry. He referred to Veryard's and my letter and asked me whether I would like to organize and start the flights. The following day in London, I was taken to lunch by Sydney Chapman. We ran accidentally into Lindeman who told me that he had heard about the meteorological flight initiative and that he thought it a good idea. As he was Churchill's adviser, this may have contributed conceivably to the realization of the project.

I was asked to recommend an operational procedure and a data reporting code for Gold's approval. I suggested regular flight tracks over the Atlantic in a north-westerly and south-westerly direction. The North Sea was added to this on Gold's insistence. My suggested plan of operations was to fly out at a low level to a distance to be determined by the range of the aircraft, then make a spiral ascent to the 500-millibar level and then return on a glide path to save fuel and stretch out the aircraft endurance. All this was rather readily accepted, but the proposed code turned out to be much more controversial.

In his time, Gold had devised innumerable codes and standards for the international meteorological community. He considered himself — rightly — an expert in this field. He also was a passionate adherent of the imperial as distinct from the metric system. We fought heatedly over trivia, until I felt that it was unbecoming for a young man to be so dogmatic with this old, experienced gentleman. I then proceeded to accept everything he said, but that too was the wrong policy. Gold loved to argue. From the moment I agreed with him, he turned round and found merit in what he had criticized so bitterly before. In retrospect, I believe Gold to have been probably the brightest and almost certainly the most distinguished scientist in the upper Meteorological Office ranks during the nineteen thirties and forties. It may have been his argumentativeness and his undisguised contempt for anything he considered foolish that kept the directorship of the service out of his grasp.

My first meteorological flight posting was to Aldergrove. When I got there in January 1941, I found three Blenheims and a complement of ground crews at my disposal — but no aircrews. Pilots were at a premium just after the Battle of Britain. For a month or so I moped around in Aldergrove, sending increasingly shrill requests through my direct pipeline to Gold and Johnson for either pilots or for permission to fly myself. In the meantime, I amused myself by flying convoy missions with one of the local Anson squadrons (No. 206) and by borrowing some of their pilots during their spare time for meteorological instrument calibration on the Blenheims.

In due course, I heard from the Air Ministry that there was no time for me to go through pilot school before starting the meteorological flights, but that they would send me to a crash navigators' course instead. As far as I remember, the course was in the Lake District or in Northumberland. It gave me a lifelong interest and facility in reading the lie of the land from the sky; I also learned a lot about celestial navigation but, at the final examination, I failed—in meteorology. One of the questions asked about the weather associated with a lapse rate of 10 °F/1000 feet. The expected answer was that it would be very unstable; instead I pointed out that such a lapse rate is not observed and cannot exist in the free atmosphere. The examiners were not amused and did not pass me, but after some noisy protests to Air Ministry I was told to stick on that badge and for God's sake to stop making such a nuisance of myself. A

long time later, after I left the meteorological flights and after several hundred hours of operational flying during which I had worn my flying badge, I received a totally unexpected letter from HQ. No. 17 (Training) Group, which certified me as a qualified air observer — so I did become legitimate in the end.

While I did my navigation course, two pilots had been posted to 1403 Meteorological Flight in Bircham Newton and I went there to join them at the end of February 1941. The senior of the two, FO Douglas Bisgood (Fig. 1) was a regular fighter pilot, who had somehow been patched together again after being terribly wounded in a head-on air collision during the Battle of Britain. After a few training and calibration flights, as well as a flying visit to Aldergrove to keep up the morale of the still pilotless ground crews of No. 1405 flight there, Douglas Bisgood and I (Fig. 2) carried out the first operational meteorological reconnaissance flight on 14 March 1941.

Figure 1. Douglas Bisgood.

Figure 2. Eric B. Kraus.

Bisgood and I flew together almost every day during the following month (Fig. 3). We tested different psychrometers and experimented with the use of bomb-sights to measure our height above a cloud surface. The Blenheims were not ideally suited for the job we had to do. They barely staggered up to the 500 mb level. We developed a procedure which required straight and level flight or even a shallow dive when the aircraft approached its ceiling. When the speed had become large enough during this phase, the pilot pulled up the nose for a little hop to a higher level where the procedure was repeated again. After a few of these steps we usually managed to get up to 500 mb.

Towards the end of March, Bisgood and I were joined by two other pilots: Flt. Lt. Denis Wykeham-Martin who took over as OC 1403 flight and Flt. Lt. Pat Ritchie (Fig. 4). When I flew with Douglas Bisgood I had to remind him sometimes that his job was no longer that of a fighter pilot. In return he used to tease me mercilessly. One day in April, he came back from a meteorological reconnaissance flight — without me — and saw three Junkers 88s returing from a raid over England to Germany. He stalked them through the summer cumulus clouds, attacked the last of the much bigger aircraft with his single, forward-shooting Blenheim popgun and shot it down. On Wykeham-Martin's recommendation, Bisgood got a DFC for this — I believe it was his second DFC. He died less than a year later.

We split up at the end of April. Bisgood was promoted and became the CO of 1403 flight in Bircham Newton, Ritchie took over as CO in Aldergrove and Wykeham-Martin went to St. Eval to start No. 1404 Meteorological Reconnaissance Flight there. I too had been promoted and was left free to commute between the three flights, though I made my permanent base in St. Eval. Later in the summer of that year, Wykeham-Martin was sent to some course or staff college for three months and I took over as acting CO of 1404 flight during his absence.

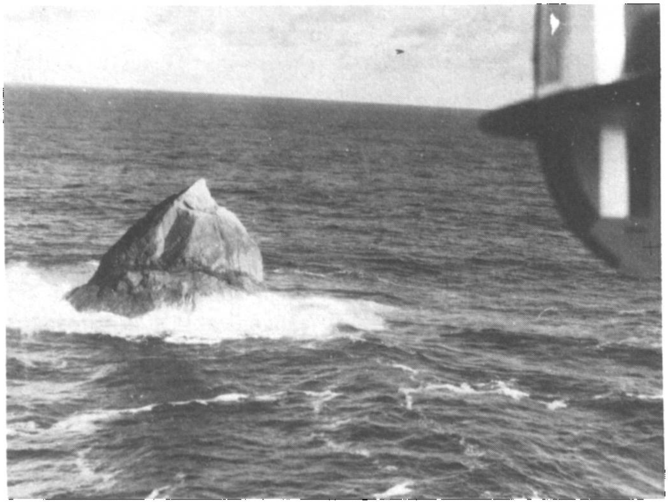

Figure 3. Rockall seen from Blenheim Z7340.

Figure 4. From left to right: Wykeham-Martin, ?, ?, Ritchie, ?

Our flights out of St. Eval over the Bay of Biscay were twice as long as those from Bircham Newton. We saw many U-boats. The fact that our sightings were relatively more frequent than those of the regular anti-U-boat patrols led to a change in official Coastal Command tactics, I believe. Instead of cruising just above the waves the patrols were ordered to fly at the higher level from which the meteorological flight crews had reported most of their first sightings. One day, coming back from the Bay with myself on the controls. I saw a U-boat below. With great excitement I dived down, popgun blazing. It was only when I levelled out above the water that I discovered it had been a poor whale whom I had so mercilessly attacked.

Meteorological flight crews became accustomed to fly in really bad weather when everyone else was grounded. Our unofficial flight badge — umbrella over skull and crossed bones with the motto *Semper in excreta* below — which had been designed by Bisgood and was painted on the side of our Blenheims (Fig. 5) perhaps bears witness to this. The aerodrome at St. Eval was closed officially when the ceiling was down to 400 feet, but we did not like to be diverted and by informal arrangement with the local meteorological officers the indicated ceiling was always at least 400 feet when the meteorological flight came back, whatever the actual cloud-base height. This permitted the returning pilot to make his own decision.

Figure 5. Flight badge of the meteorological flight's Blenheims, designed by Flt. Lt. Bisgood — *not* approved by King George VI.

One of the most experienced pilots in 1404 Flight was Flight Sergeant Portman (Fig. 6). I had recommended him for a commission while I was acting CO. On his first flight as a Pilot Officer, he returned in miserable weather — with the usual indicated ceiling of 400 feet. He broke cloud over what he expected to be the sea, but was in reality the Lizard. The first object he saw was a bush right in front of him. The only thing he could do was to force the aircraft up the slope of a hill which just matched the maximum Blenheim climbing rate. The propellers churned through the heather, a fence was knocked over and an innocent pedestrian only saved himself through violent evasive action. Finally, Portman reached the summit of his hill and then made it safely to St. Eval. His Blenheim, with the leading edge and the landing lights full of gorse which Portman had collected during his climb, is shown in Fig. 6.

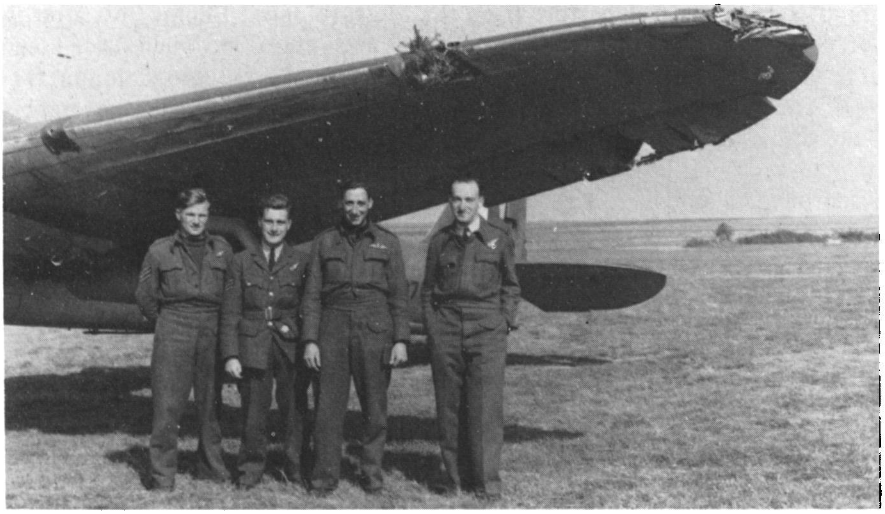

Figure 6. Note gorse on Blenheim's leading edge. For left to right: ?, ?, Flt. Sgt. Portman, Flt. Lt. Kraus.

Through most of 1941 I had been able to write my own ticket. I had cut quite a few corners to get the meteorological flights off the ground. In the autumn of 1941, these free-wheeling days came to an end and bureaucracy took over. I was put formally under the command of a Wing Commander Carey at Coastal Command. At the same time, Peter Sheppard was appointed head of a Branch in the Meteorological Office which was to be responsible for meteorological reconnaissance. Carey first kept me in an office next to his at Coastal Command and then ordered me to Iceland to start a reconnaissance flight out of Kaldadharnes. It was the first time I was told by higher authority what to do.

I went by train and ship to Aldergrove and then took one of Ritchie's planes to Iceland. By that time, the Blenheims of 1405 Flight had been replaced by Lockheed Hudsons, which were considered a death-trap in a forced landing on water. I remember that when we landed in Kaldadharnes the wind blew at about the same speed as the landing rate of the Hudson. When Flt. Lt. Eccles put the aircraft down, it rolled to a stop within about ten yards. On the return flight, somewhere between Iceland and Aldergrove, I heard in snatches over the radio about Pearl Harbor and about America's entry into the war. I knew then that the war had entered a new phase.

When I got back to London I had jaundice. I was also tired after some 400 hours of operational flying in eight months. I had to get Carey's permission to get married early in 1942, which was granted rather grudgingly. After a short honeymoon, I was posted as an instructor to a training station in Thornaby. I cannot remember what or whom I taught there — it may have been new meteorological observers. From my log-book I see that I did some flying in Thornaby, participated in two bombing raids and visited Bircham Newton again. In April 1942, I went on four long Meteorological reconnaissance flights out of Wick, Scotland. One of these must have got me over Norway, because I have some photographs of it in my album. Curiously, these days are much less vivid in my mind than the early Meteorological Flight days in Bircham Newton and St. Eval.

After the summer of 1942, when I was posted to Benson, Oxfordshire as the Senior Meteorological Officer with the Photographic Reconnaissance Unit there, I lost contact with the Meteorological reconnaissance flights. Douglas Bisgood, Denis Wykeham-Martin and John Portman were all killed in different places during this year. Ritchie went on after the war to become Master of the Guild of Navigators in Australia and then Managing Director and, I believe, Chairman of Qantas Airways.

Three years after my official departure from the Meteorological Flights, just after the end of the European war, Sqn. Ldr. Saffery and I ferried a long-range photo-reconnaissance Mosquito aircraft from Benson to Calcutta. While we were in India, we were asked to fly to Colombo for a visit to the South East Asia Theatre HQ. I was briefed there about the planned dispatch of several bomber groups from England to China for participation in the war against Japan. In preparation for this effort, I was to explore the Chinese meteorological facilities and also make suggestions for the establishment of a Mosquito meteorological reconnaissance flight over the South China Sea. It was in China — again in the air — between Kunming and Chungking that I heard about the Hiroshima bomb, which made the establishment of a Pacific meteorological flight rather irrelevant.

This article was written in response to a general appeal for such reminiscences; although not originally intended for publication, it will, we think, interest our readers.

Notes and news

MOLARS goes on-line

The Meteorological Office Library Accessions and Retrieval System (MOLARS) contains a bibliography of books, journals and individual articles held by the National Meteorological Library, London Road, Bracknell, Berkshire RG12 2SZ. Since 1972 over 9000 items a year have been catalogued and classified by UDC (Universal Decimal Classification) numbers covering meteorology, climatology and related atmospheric sciences.

On-line access to MOLARS is now available from the European Space Agency Information Retrieval Service (ESA-IRS). Details may be obtained from the United Kingdom agent, DIALTECH (telephone: 01-212 5700). Access to MOLARS from within the Meteorological Office is available on terminals from the main computing complex (COSMOS).

For details of MOLARS, see Harris and McSean (1980).*

Last remaining serving wearer of the 'M' brevet leaves the RAF

Wing Commander B. D. (Brian) Tanner, the last remaining serving wearer of the 'M' brevet, retired from the Royal Air Force last April.

Wg/Cdr. Tanner joined the RAF as a National Serviceman in August 1953 and in March 1957 attended the Aero Met Observers' Course at RAF Aldergrove, and was awarded his now unique 'M' brevet in June 1957. As a Sergeant Meteorological Observer he flew over 1800 hours in Shackleton and Hastings aircraft, deliberately seeking out and flying in the foullest weather to obtain essential weather data. In Septeber 1959 he left the Service but re-entered shortly afterwards and was commissioned in September 1960 into the Air Traffic Control Branch. The Squadron responsible for Meteorological Research, No. 202, was disbanded in 1963 and the majority of the 'M' brevet holders retired soon after. Squardron No. 202 was later re-formed and found further fame in the Search and Rescue role.

As an air traffic controller Wg/Cdr. Tanner has held a wide variety of appointments, including Senior Air Traffic Controller at RAF Leeming and Command Air Traffic Controller at HQ Strike Command; his last was as Officer Commanding Central Air Traffic Control School.

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*Harris, E. W. C. and McSean, T.; MOLARS — Automating the National Meteorological Library. *Meteorol Mag*, **109**, 1980, 18–21.